# quid Organic Extracts vs. Compost Teas

Building on the concept of compost teas as a liquid organic extract, what are some other common organic extracts used as a liquid drench or foliar spray?

#### **Manure Tea**

Manure-based extracts—a soluble nutrient source made from raw animal manure soaked in water. For all practical purposes, manure tea is prepared in the same way as the compost extracts described in the preceding section. The manure is placed in a burlap sack and suspended in a barrel of water for 7 to 14 days. The primary benefit of the tea will be a supply of soluble nutrients, which can be used as a liquid fertilizer.

### **Herbal Tea**

Plant-based extracts—stinging nettle, horse tail, comfrey, clover. A common method is to stuff a barrel about three-quarters full of fresh green plant material, then top off the barrel with tepid water. The tea is allowed to ferment at ambient temperatures for 3 to 10 days. The finished product is strained, then diluted in portions of 1:10 or 1:5 and used as a foliar spray or soil drench. Herbal teas provide a supply of soluble nutrients as well as bioactive plant compounds.

# **Liquid Manures**

Mixtures of plant and animal byproducts seeped as an extract—stinging nettle, comfrey, seaweed, fish wastes, fish meal. Liquid manures are a blend of marine products (local fish wastes, seaweed extract, kelp meal) and locally harvested herbs, soaked and fermented at ambient temperatures for 3 to 10 days. Liquid manures are prepared similarly to herbal tea—the material is fully immersed in the barrel during the fermenting period, then strained and diluted and used as a foliar spray or soil drench. Liquid manures supply soluble nutrients and bioactive compounds.

**Summary:** Compost teas and herbal teas are tools that can be made on the farm to enhance crop fertility and to inoculate the phyllosphere and rhizosphere with soluble nutrients, beneficial microbes, and the beneficial metabolites of microbes.

**Caution:** Wheareas raw animal manures are used as a compost windrow feedstock, the composting process—thermophyllic heating to 135-160° F for 10-15 days—assures pathogen reduction. The raw organic matter initially present in the compost windrow undergoes a complete transformation, with humus as an end product. Any pathogens associated with raw manures will be gone. So caution is extended: Manure teas are **NOT** the same thing as compost teas or compost extracts. Because of concerns over new pathogenic strains of *E. coli*, the author advises growers to reconsider manure teas and/or to work with a microbial lab to ensure a safe, worthwhile product.

# **Methods of Compost Tea Production**

**Bucket-Fermentation Method** 

"Passive" compost tea is prepared by immersing a burlap sack filled with compost into a bucket or tank, stirring occassionally. Usually the brew time is longer, from 7 to 10 days. This is the method that dates back hundreds of years in Europe, and is more akin to a compost watery extract than a "brewed" and aerated compost tea.

#### **Bucket-Bubbler Method**

The equipment setup and scale of production are similar to the bucket method, except that an aquarium-size pump and air bubbler are used in association with microbial food and catalyst sources added to the solution as an amendment. Since aeration is critical, as many as three sump pumps may be used in a bucket simultaneously.

With homemade compost tea brewing, a compost "sock" is commonly used as a filter-strainer. Ideally, the mesh size will strain compost particulate matter but still allow beneficial microbes—including fungal hyphae and nematodes—to migrate into solution. Single-strand mesh materials such as nylon stockings, laundry bags, and paint bags are some of the materials being used; fungal hyphae tend to get caught in polywoven fabrics. If burlap is used, it should be "aged" burlap.

# **Trough Method**

Large-scale production of compost teas employs homemade tanks and pumps. An 8- or 12-inch-diameter PVC pipe is cut in half, drilled full of holes, and lined with burlap. Compost is placed in this makeshift trough. The PVC trough is supported above the tank, several feet in the air. The tank is filled with water, and microbial food sources are added as an amendment. A sump pump sucks the solution from the bottom of the tank and distributes the solution to a trickle line running horizontally along the top of the PVC trough filled with compost. As the solution runs through the burlap bags containing the compost, a leachate is created which then drops several feet through the air back into the open tank below. A sump pump in the bottom of the tank collects this "tea" and distributes it back through the water line at the top of the trough, and so on. Through this process, which lasts about seven days, the compost tea is recirculated, bubbled, and aerated. The purpose of the microbial food source is to grow a large population of beneficial microorganisms.

### **Commercial Tea Brewers**

Commercial equipment is available for the production of brewed compost teas (see a list of suppliers below). Usually there is a compost sack or a compost leachate basket with drainage holes, either of which are used to hold a certain volume of compost. The compost-filled container is placed in a specially designed tank filled with chlorine-free water. Microbial food sources are added to the solution. A pump supplies oxygen to a specially-designed aeration device which bubbles and aerates the compost tea brewing in the tank.

**Summary:** Depending on your scale of production and the level of financial resources available to purchase commercial brewing equipment vs. making some kind of homemade brewer, there are several methods to choose from. Research at Soil Foodweb, Inc. in Corvallis, Oregon has shown that differences

exist in the beneficial attributes of compost teas, with commercial tea brewers producing the greatest numbers and diversity of beneficial microorganisms.

# **Compost Tea Brewing Equipment**

### **Growing Solutions, Inc.**

160 Madison Street, Eugene, OR 97402, 888-600-9558 Toll-Free 541-343-8727 Local, 541-343-8374 Fax <a href="mailto:info@growingsolutions.com">info@growingsolutions.com</a> website: <a href="http://www.growingsolutions.com">http://www.growingsolutions.com</a> Growing Solutions carries the System25<sup>TM</sup> (25-gallon), System100<sup>TM</sup> (100-gallon), and System500<sup>TM</sup> (500-gallon) models. Each model consists of a tank, pump, aeration device, and a compost leachate basket. Growing Solutions also makes a pre-packaged microbial food/catalyst source for compost tea brewing (dry mix). They also carry a specialized 27-gallon sprayer designed to handle the larger particulate matter found in compost teas.

### Soil Soup, Inc.

9792 Edmonds Way #247, Edmonds, WA 98020, 877-711-7687 Toll-Free 206-542-9304 Local, 206-533-0748 Fax

Farming@soilsoup.com website: http://www.soilsoup.com

The Soil Soup<sup>TM</sup> system consists of a polyethylene mixing tub, a synthetic felt compost bag, the BioBlender<sup>TM</sup> aeration pump, and the Soil Soup Nutrient Solution containing a microbial food/catalyst source (liquid mix). The regular systems come with 6.5-gallon, 12-gallon, and 30-gallon tanks, but they also make 175-gallon, 500-gallon, and 1050-gallon tanks.

#### **Microb Brewer**

182 Capital Lane, Roseburg, OR 97470

info@microbbrewer.com website: http://www.microbbrewer.com

The Microb Brewer<sup>TM</sup> system—designed for brewing compost teas, plant extracts, and manure teas—consists of a funnel-shaped tank, pump, vortex nozzles for agitation and aeration, and a compost leachate basket. Tanks are available in 12-, 50-, and 500-gallon sizes.

## **EPM Inc.—Earth Tea Brewer**

P.O. Box 1295, Cottage Grove, OR 97424, 541-767-2747, 541-767-2744 Fax sales@fish-world.com website: <a href="http://www.composttea.com">http://www.composttea.com</a>

EPM Inc. carries the Earth Tea Brewer<sup>TM</sup> in 100- and 500-gallon tank sizes; each model consists of a tank, a pump, and a compost leachate basket. It features two aeration devices—venturi nozzles and air-stones—for diffusion of oxygen. EPM also makes a prepackaged microbial food/catalyst source for compost tea brewing (dry mix). EPM is a sister company to Worm Wigwam<sup>TM</sup>, and promotes vermicompost—also known as worm compost—for the production of compost teas.

#### Compara—Xtractor

Compara Co. in The Netherlands, Bob Baars, +31 71 34 19873 office@compara.nl website:

http://www.compara.nl/Compost\_Tea\_Systems.htm/English

Compara is the biological farming company in The Netherlands managed by Bob Baars. The Xtractor<sup>TM</sup> series—Xtractor<sup>2TM</sup>, Xtractor<sup>10TM</sup>, Xtractor<sup>20TM</sup>—is a Do-It-Yourself Kit with aeration and tubing components to make compost tea in 50-, 250-, and 500-gallon barrels or tanks, purchased locally by the grower. Compara ships the DIY Kits overseas. Compara also makes a prepackaged microbial food/catalyst source for compost tea brewing (dry mix).